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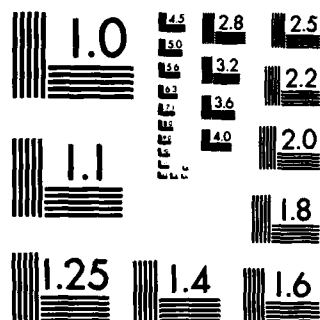
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## TACTICAL INTELLIGENCE: SUPPORTING THE ARMY'S AIRLAND BATTLE

BY

COLONEL GERALD V. WEST

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USAWC MILITARY STUDIES PROGRAM PAPER

TACTICAL INTELLIGENCE:  
SUPPORTING THE ARMY'S AIRLAND BATTLE

INDIVIDUAL ESSAY

by

COLONEL GERALD V. WEST

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Carlisle Barracks, Pennsylvania 17013  
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ABSTRACT

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Tactical reconnaissance forces are tasked with providing intelligence data to ground and air commanders. The US Army's new AirLand Battle doctrine prescribes the integration of both air and ground combat capabilities into a high maneuver battlefield. Although an integrated battlefield, the main emphasis is on fighting in depth with corps and echelons above corps as primary command levels. Intelligence systems must provide continuous all-weather/all-light surveillance of the battlefield to meet these demands. No single sensor, system or discipline can satisfy all these needs. A mix of organic, theater, and national sensors is required to provide an all-source intelligence picture to the commander. Support of AirLand Battle requires a three part effort. First, long range, multi-discipline sensors capable of seeing deep in real-time. Second, a tactical fusion system to correlate this overload of data and present it in a form which decision makers can use to influence on going combat operations. And lastly, an effective communications system capable of transmitting this data to all command levels in a timely manner. The first part of this requirement will be filled by the high altitude, stand off sensors associated with the TR-1 aircraft. These sensors provide expanded electronic and radar collection capabilities. Real-time sensors, coupled with a comprehensive Joint Tactical Fusion program and improved C<sup>3</sup> capabilities, will meet the intelligence needs prescribed by AirLand Battle doctrine.

### TACTICAL INTELLIGENCE: SUPPORTING THE ARMY'S AIRLAND BATTLE

In the October 1979 issue of Signal, General Charles A. Gabriel, then Deputy Chief of Staff/Operations, Plans and Readiness, Headquarters, USAF wrote:

A conflict in Central Europe will likely be fought in what is often referred to as a "target rich" environment for U.S. and NATO forces. To some people, this obtuse reference to the overwhelming numerical superiority of Warsaw Pact (WP) and Soviet forces means that there is less need for reconnaissance acquisition systems in such an environment. Actually, quite the opposite is true. The numerical superiority of WP forces compounds the target acquisition process and makes the need for reconnaissance systems more critical than ever before....We are no longer able to rely on virtually unlimited resources and unequalled production capability to outproduce our enemies and overwhelm them with weight of arms. In future conflicts, our weapons must be employed selectively and with precision because we are a force limited.<sup>1</sup>

Now, almost five years later, as we look at our tactical reconnaissance capability and how we are going to support current concepts, General Gabriel's message remains true and provides the baseline for intelligence system planning. Tactical



reconnaissance is a vital part of the battlefield effort and these limited assets, like the weapon systems they support, must be managed with the utmost care.

The 1982 version of the U.S. Army's Field Manual 100-5, Operations, articulates the AirLand Battle doctrine and prescribes the integration of both ground and air combat capabilities into a high maneuver battlefield. Numerous articles have been written, pro and con, about the merits of this new doctrine and its operational effectiveness. Although there are many views on the operational mechanics of the concept, there is almost unanimous agreement that its success is dependent on the amount, quality, and timeliness of intelligence available to commanders at all levels. This authoritative prescription of "how to fight" the next war puts added reliance on a capability which has received little support in past doctrines, from planners, and in defense budgets. In this paper I will discuss the general intelligence requirements generated by the AirLand Battle, the capability of current and near term tactical reconnaissance systems to support it, and areas of major concern. Although the discussion concentrates on the deep battle and the NATO environment, the basic discussion is germane to other battlefield environments.

#### The AirLand Battle

AirLand Battle doctrine stresses initiative, depth, agility, and synchronization.<sup>2</sup> Although it is a doctrine of an integrated battlefield, the main emphasis is on depth. Fighting

in depth, often referred to as the "deep attack" or "extended battlefield", has become the byword and is considered synonymous with the AirLand Battle. However, the concept also includes the close-in and rear battle areas, which must be considered in our reconnaissance planning. While it is true that delaying the follow-on forces strengthens the close-in direct fire battle, we cannot afford to concentrate our collection capabilities and weapons in the deep area and neglect the main battle.

The concept of looking to the deep areas was introduced by General Donn A. Starry, then commander of the U.S. Army Training and Doctrine Command (TRADOC). His 1981 article, "Extending the Battlefield", stated:

The extended battlefield is not a new concept. It is a more descriptive term for indicating the full potential we must realize from our acquisition, targeting, and weapons systems. The battlefield and battle are extended in three ways: First, the battlefield is extended in depth, with engagement of enemy units not yet in contact to disrupt the enemy timetable, complicate command and control and frustrate his plans, thus weakening his grasp on the initiative.

Second, the battle is extended forward in time to the point that certain actions such as attack of follow-on echelons, logistical preparations and maneuver plans are interrelated to maximize the likelihood of winning the close-in battle as time goes

on.

And lastly, the range of assets figuring in the battle is extended toward more emphasis on higher level Army and sister service acquisition means and attack resources.

What emerges is a perception of the battlefield in which the goal of collapsing the enemy's ability to fight drives us to unified employment of a wide range of systems and organizations on the battlefield which, for corps and divisions, is much deeper than foreseen by current (active defense) doctrine.<sup>3</sup>

The emphasis placed by General Starry elevates the primary control of information and collection assets to the corps level and to echelons above corps (EAC). The extended battlefield demands reliance on long range sensors, current intelligence, and a communications system for the timely distribution of this data. This translates into two major areas of concern: coverage of a highly maneuverable, non-linear, and everchanging battle area; and secondly, "seeing" deep to provide commanders targeting and planning data throughout their areas of interest and influence.

#### Intelligence Requirements

Intelligence systems must provide all-weather/all-light surveillance of the battlefield with the frequency necessary to keep the picture continuous and credible to meet these demands. Additionally, updates and changes to the picture must be reported in sufficient time to use the intelligence to influence the

battle. No single sensor, system, or discipline can satisfy all these needs; therefore, a mix of organic, theater, and national sensors is required to provide an all-source intelligence picture to the commander.

Specifically, the organic sensors must focus on the immediate battle and be directly responsive to the commander. Theater sensors must reinforce those at corps/EAC and provide intelligence throughout the zones of first and second echelon forces; National systems must complement and verify organic and theater sensor data while providing timely intelligence on enemy second echelon army forces and further assist the commander in understanding the battle area and how it may change. Reliable, complementary, multi-disciplined collection, dissemination, and exploitation capabilities are necessary to satisfy the commander's needs in winning the AirLand Battle.

General Starny adds two basic keys that he feels lends credibility to war fighting capability on the extended battlefield, both which substantiate the intelligence role:

- Sensor/surveillance systems are needed to prevent surprise attack in peacetime and provide necessary targeting and surveillance information in wartime.

- We need command and control means sufficient to integrate all-source intelligence in near-real-time in peacetime, and in wartime to provide that intelligence and targeting information to maneuver for employments in near-real-time as well.<sup>4</sup>

Following these imperatives, targeting and intelligence collection in the deep battle must be tailored to the overall needs of the commander and the situation. Different echelons of command have different areas of interest and responsibility. That is, echelon information needs vary in terms of geography, timeliness, and level of detail. In general, the ground commander's information needs are keyed to the respective areas of command influence and interest. Corps and EAC requirements generally fall into the following areas:

- Immediate and current information on the real situation; where are the enemy divisions and regiments? (corps)
- What and where are the enemy supporting weapon systems? (corps/EAC)
- What are the high value targets in the area of influence? (corps/EAC)
- What will the enemy do in the next 96 hours? (corps - 96+ EAC)
- What does the enemy perceive as my vulnerabilities? (corps/EAC)
- What is the enemy's logistical situation? (EAC)
- What is the degree of host nation support and control? (EAC)
- What will be the air threat for the next 96+ hours? (EAC)
- What is the disposition of my own forces? (corps/EAC)

The air component commander's information needs, relative to the ground battle, equate to the sum of the different Army

echelon needs. The air component commander also requires timely and adequate information on the first and second echelons to distribute assets in support of the ground forces. Further information is needed to maintain the responsiveness and force size necessary to counter successive enemy efforts. Surveillance systems must monitor ground activity deep beyond the forward line of own troops (FLOT) to provide timely and accurate information on developing threat formations that might enter the battle area. Information must be provided in different levels of detail to support the missions of direct support to ground troops, interdiction of second echelon targets, and critical target identification.

The air and ground commanders' needs establish the guidelines for the intelligence cycle. The intelligence process, or cycle, (request, collection, processing, and dissemination) must be an integrated effort, using all resources available. If this is not done, the battle commanders at every level may be denied vital information that could become decisive. The task of data collection, processing, and transmission is a management problem that we have been wrestling with as long as there has been a need for intelligence. The essential problem of any battlefield operation is to achieve an order of information flow. This means an information flow to those who command and control that is timely, accurate, complete, germane to the request, and presented in a useable form.

## Command and Control

FM 100-5 places corps as the focal point for intelligence collection and distribution in the deep battle and defines the battlefield in terms of "area of influence" and "area of interest". Both are designated by the next higher level of command. Commanders will fight in their "area of influence". This area normally encompasses enemy forces whose actions can affect the unit's close-in battle. Commanders must, however, simultaneously monitor activity beyond their areas of influence in a broader "area of interest". This area includes activity which could have an effect on future operations (Figure 1). We can see that as the areas start to expand, then overlap, there is a definite need for corps/EAC management of intelligence data. Corps/EAC management of intelligence data and collection systems is essential to the conduct of the deep battle. In this arena, as areas of influence begin to overlap, major emphasis is put on our ability to adjust to the rapidly moving battlefield, collect deep information, exploit it fully, and get it to the various command levels in useable form and in time to be effective. The exchange of information through all levels of command is the key to an effective tactical intelligence system. Just as EAC systems support corps requirements, corps must support division and brigade operations. This is an essential two-way communications flow.

### Area of Influence

An area of influence is that part of the battlefield wherein a commander is directly capable of influencing by maneuver or fire support systems normally under his command or control.

<u>Level of Command</u>	<u>Approx Distance Beyond FLOT</u>	<u>Approx Distance Beyond FLOT</u>
Division	70 Km	0-24 Hrs
Corps	150 Km	0-72 Hrs
EAC	150+Km	72+ Hrs

### Area of Interest

An area of interest is that area of concern to the commander, including the area of influence, areas adjacent thereto, and extending into enemy territory to the objectives of current or planned operations. This area also includes areas occupied by enemy forces who could jeopardize the accomplishment of the mission.

<u>Level of Command</u>	<u>Approx Distance Beyond FLOT</u>	<u>Approx Distance Beyond FLOT</u>
Division	150 Km	0-72 Hrs
Corps	300 Km	0-96 Hrs
EAC	1000 Km	96+ Hrs

Figure 1  
Areas of Influence and Interest.<sup>5</sup>

When discussing the deep battle we tend to overlook the importance of the close-in battlefield and its integration with the entire battle area. As General Starry points out, "deep attack, particularly in an environment of scarce acquisition and strike assets, must be tightly coordinated over time with the decisive close-in battle. Without this coordination, many expensive and scarce resources may be wasted on apparently attractive targets whose distribution actually has little pay-off in the close-in battle".<sup>6</sup> Command and control functions must be familiar with all types of information available if they are to integrate deep and close-in intelligence requirements, match them with limited collection assets and provide all levels with



required information. Trying to define what type data is required more often than not leads to confusion. Our system must to be structured so that a user can access what he needs regardless of his level in the battle. What the battlefield commander needs is operational information, not "intelligence". Intelligence people deal in intelligence; commanders deal in information. FM 100-5 categorizes collected data as:

COMBAT INFORMATION

1. Readily exploitable information
2. Near real time data to user
3. Used immediately for-
  - tactical execution
  - tactical targeting
  - maneuvering

INTELLIGENCE

1. All source/complex information
2. Detailed analysis to user
3. Used by higher commanders for-
  - planning
  - movement/concentration
  - long range targeting ?

There is no clear-cut distinction on information needs in the AirLand Battle doctrine. The emphasis on maneuver, with quick excursions into the extended battlefield, tips the scale to the need for near-real-time information throughout the battlefield. Intelligence, in the classic definition, is required for planning deep but must be combined with the immediate, or combat information, for execution. This emphasizes the need for an intelligence system that can manage, prioritize, and disseminate requirements from EAC through the lowest user.

Collection, Correlation, and Dissemination

Providing complete information on the integrated battlefield

to ground and air commanders, at various levels which all have different requirements, is no easy task. As stated earlier, no single sensor or system is capable of detecting, locating, identifying, and tracking targets. Only through fusion of data from a variety of sensors, and with communications to provide dissemination, will timely and accurate information be available in the quantity needed. A dedicated communications network along with revamped command and control procedures for reconnaissance systems are vital for inputting collection requirements and reporting the information. Without such a network the ability to support tactical commanders with required timeliness will be limited.

Critical to the success of the AirLand Battle is the ability to "see deep". This capability is perceived as a weak link in the concept. As shown in figure 1, the corps' area of influence extends out to approximately 150 Km and to 300 Km in his area of interest. If, as implied throughout the doctrine, corps is to fight the deep battle and be the primary control level for intelligence collection and assets, we must look closely at the term "see" and at the capability of tactical reconnaissance systems to operate in this arena. "Seeing", in my definition, is the ability to task any collection system available to gather data from a designated area sufficient to satisfy the requestor's need. This includes intelligence/combat information to be used for battlefield planning or specific targeting.

Among the doubts voiced over the strike deep concept has

been whether or not surveillance systems can acquire targets in time for precision guided weapons to be effective. Benjamin F. Schemmer, writing for the Armed Forces Journal International, reports that NATO officials have voiced their doubts by stating: "NATO surveillance and reconnaissance assets can't locate even the close-in targets for the weapons it has today, and will be much harder pressed to target the more distant second and third echelon forces..."\* I do not believe that our reconnaissance force is that inadequate. I do agree that our capability is limited in the type information collected in the deep area and in the communication systems available to get it to the requestor in a timely manner.

To see deep in real-time and near-real-time, we must rely heavily on tactical electronic collection systems. Corps and theater assets have the capability to provide this type information in real-time. However, imagery collection systems, radar and optical, have a very limited capability in the corps commander's deep areas of influence and interest. For the close-in battle, corps/division ground and air assets perform a vital role and provide a strong capability for target acquisition. USAF RF-4C aircraft, equipped with Tactical Electronic Reconnaissance (TEREC) and Side Looking Airborne Radar (SLAR) sensor systems, provide additional coverage of first echelon forces.

The rapid maneuver capability of enemy forces on the future battlefield dictates that decision makers have at their disposal

a vast array of information from which to make effective decisions. Continued development of accurate and timely real-time and near-real-time systems that can be immediately responsive to his needs is essential. Current and near term systems which will give the best capability to meet this requirement are the high altitude, stand off sensors associated with the TR-1 aircraft. These new systems will provide additional electronic and radar imagery collection capabilities. Systems expected to be fielded in the near future (1986-1987) include the Precision Location Strike System (PLSS), Joint Surveillance Target Acquisition Radar System (JSTARS), and the Advanced Synthetic Aperture Radar System (ASARS).

ASARS, part of the TR-1's reconnaissance sensor system package, will be the first to be fielded and will provide the tactical commanders with real-time radar mapping imagery of the battle area. The system's versatility, coupled with long on-station time, will provide continuous coverage throughout the corps commander's area of influence. The real-time aspects of the system will allow immediate retasking/revisit time for time sensitive target areas. PLSS and JSTARS are designed to be strike systems but their collection capabilities will provide vital real-time information to the tactical intelligence data base. PLSS precisely locates and identifies targets through the interception of electromagnetic emissions. JSTARS, which will fill the collection/identification void left by the cancelled SOTAS program, uses a moving target indicator radar to locate,

monitor, and target moving targets. JSTARS will provide extensive intelligence collection and targeting information in the corps commander's area of influence while PLSS has the capability to cover his area of interest.

So far we have looked at the AirLand Battle, its intelligence requirements, and the current and programmed tactical reconnaissance systems. The capability to collect information to support the decision makers is not the question; getting it to them in a timely manner and in a usable form will spell success or failure. To do this, it is imperative that a tactical fusion capability be improved to correlate data collected from the various systems and a dedicated communications network be developed to disseminate the information.

Tactical fusion is defined as the process of reducing or correlating available sensor data by using computer assistance to combine related information into a single meaningful event which can be used by a decision maker or intelligence user to reduce uncertainty. In this sense, it represents a common service requirement. A tactical fusion system will rapidly correlate multi-source, multi-discipline data and display results in a form which decision makers, both ground and air, can use to influence on going combat operations. Tactical fusion enhances targeting of the second echelon based on the commander's priorities. This enhancement is accomplished through cross feeding of target data between the services. This cross-flow of relevant data and the sharing of common perceptions of the battlefield gives the

commanders the capability more effectively to manage combat resources. Also, the system ensures that both air and ground commanders have access to similar data bases for decision making and multiple weapon systems selection options. This cross-flow of information is vital to the coordination and effective employment of ground and air resources.

In the "deep battle", it is characteristic of air intelligence to look primarily at "targets" while the land commander is after a specific "effect" on a designated target. To the strike force, "targeting" connotes not only the full air intelligence process of selecting and defining the target in detail, but also implies the type munitions to be employed, the delivery aircraft and supporting systems. Land commanders see intelligence as more than simply targeting information. They see it as a means of defining the enemy's capabilities and intentions. To the land commander, "targeting" means a statement of what he wants hit, what he wants done to it, and when it should be hit. He is not looking just for destruction, but a particular effect advantageous to his ground plan. This basic difference in defining a seemingly simple term raises two inherent questions: Who should define the deep target? Who should be the controlling force?

The land commander may well, and usually should, define the specific effect to be achieved. However, it is essential that air and land commanders coordinate this requirement. If the desired effect is not fully understood by both component

commanders, the potential exists for misapplication of limited and essential strike forces. Targets must be validated to ensure that the intelligence upon which selection is based is correct, especially true of moving targets. Second, that the selection criteria is appropriate and could the desired effect now be accomplished. Third, that the target is still the most important.<sup>9</sup> This coordination and validation process would be aided through access to an all-source data base. If the continuously updated information in the data base can satisfy the requestor, not only does he receive the information more quickly, a reconnaissance mission may be saved and be available for perhaps a higher priority request.

To obtain this important capability, a Joint Tactical Fusion program has been initiated. This program, derived from the earlier Battlefield Exploitation and Target Acquisition (BETA) program, will synthesize information from the Army All Source Analysis System (ASAS) with the Air Force Enemy Situation Correlation Program. A similar approach is being tried with the NATO Tactical Fusion Center, which will correlate various data to plot mission profiles.<sup>10</sup>

Tactical fusion is severely limited by the availability of communications to support an operational system, especially between services where it is vitally needed. This problem has plagued the intelligence community for years. History notes that during the Civil War, General Fritz John Porter and Major General George B. McClellan, both early and active supporters of aerial

reconnaissance and the Balloon Corps, were often discouraged because of the time lag between their request for a flight and the time they received the information. It seems that little has changed over the years, only now the lag is measured in minutes.<sup>11</sup> Communications alone cannot win a battle, but the lack of a reliable effective communications network can contribute to defeat. Mr. Schemmer reports that many of NATO's leaders also doubt the alliance's capability to transmit intelligence data in a timely manner: "NATO's tactical communication nets are so complex, failure prone, and unreliable that even if enough long range targets could be located, the necessary strike orders and fire missions couldn't be relayed in time to accomplish much more than blow up real estate which used to be occupied by enemy forces that have since moved closer to the front".<sup>12</sup>

#### SUMMARY

Providing accurate, timely and useful information to the requestor is the primary purpose of USAF tactical reconnaissance forces. With doctrinal changes in the conduct of the ground battle, technical advances in sensor capabilities, and the improving enemy air defense systems, the tactical reconnaissance cycle needs to be closely examined. All indicators for the next war in Europe point to a short, fast-paced conflict to be fought with systems on hand. This type of conflict will require almost continuous surveillance of the battle area with rapid dissemination to the requestor. Moreover, it will require a



central manager, aware of the overall game plan, to ensure that appropriate targets/target areas are covered and prioritized.

The apportionment/allocation process for reconnaissance platforms needs to be re-evaluated. In current procedures, reconnaissance assets are apportioned/allocated essentially the same as fighters with a specific number of sorties being available to the corps. Retaining this system, however, could be counter productive to the overall theater intelligence collection and dissemination effort. The new generation of sensors are more specialized and are designed to support a broad area of operations. By controlling these limited assets at a higher level, the systems could be directed to the area requiring the most immediate attention. Because these sensors are designed for broad area, real-time collection, only the emphasis of collection needs to be changed, not the position of the platform. This, in combination with an all-source fusion system that can be directly accessed by corps, will result in a more efficient and responsive tactical reconnaissance system. This allocation process is being used in Europe, on a limited scale, with the specialized RF-4C TERC and SLAR assets.

In addition to SLAR and TERC, both stand-off systems, the major contribution to battlefield intelligence collection has been by the use of the RF-4C as a penetrator to obtain visual intelligence or optical photography. With the current enemy threat defense systems, survivability of the penetrator is questionable at best. While these penetrating systems will still

play an important role in the intelligence cycle, the future of tactical reconnaissance lies with the stand-off, real-time collection systems. These new systems will be able to provide electronic surveillance, radar ground mapping, and moving target indications. They will provide timely coverage of the battle area while increasing their survivability from a stand-off position.

The advantages of stand-off systems are prolonged on-station time, depth of sensor coverage, all-light/all-weather capability, and real-time or near-real-time dissemination of target information. These advantages allow them to fall back from their normal stand-off position when threatened by aircraft or missiles, and still provide timely and continuous target information to theater commanders. However, their fall back does reduce sensor coverage and target acquisition in the deeper areas. For the radar sensors, the depth of coverage is not only reduced but normal sensor limitations apply; hence the need for another source of intelligence or reconnaissance to complement the imagery for more accurate target identification and targeting. This limitation could be critical to theater commanders who must ensure that limited and costly strike resources are employed with maximum efficiency and effectiveness.<sup>13</sup>

Theater commanders are faced with multi-corps operation, necessitating as much information readily available as possible. With maneuver being one of the prime elements of the AirLand

Battle, non-linear lines will develop. Continuous, realtime coverage will enable the commander to see the majority of the battle area, coordinate movements of the overlapping corps, and develop an effective information base for battlefield management. This requirement puts greater emphasis on a comprehensive tactical fusion process. This process will be central to the management of the overload of available information and requests, will provide an immediate response by querying the data base, and if the information is not available, will task the appropriate sensor system. When managed correctly, a center of this type will be able to satisfy requests from all levels and will provide the timely and high volume of intelligence/combat information needs that will accompany the AirLand Battle. However, for this system to work, all users must become thoroughly familiar with the product and learn to use it regardless of the collection source. Time constraints will limit the use of hard copy photography, optical and radar, with more reliance on written reports.

As the all-source data base is the hub for information consolidation, the key to the whole operation is an effective dissemination system. Without this, all the information in the world is useless. The system must have direct links with corps/EAC: EAC for the strategic level of the battle and corps for the operational and tactical level.

General Gabriel effectively describes the system which satisfies all requirements:

Ideally, what is needed is a single invulnerable system that sees the entire battlefield 24 hours a day under all weather and light conditions, filters the information according to the individual commander's needs and instantly transmits all pertinent information directly to the user just as the events are occurring on the battlefield.<sup>14</sup>

A system with these desired capabilities is not currently available nor will be in the foreseeable future. However, there is much being done, currently and in the near term, to develop an effective system that would rival the "ideal". This is dependent on the effective meshing of all available resources. The new generation of stand off, real-time collectors (ASARS, PLSS, JSTARS) are going a long way towards providing the desired collection capability. As a result, the intelligence and development communities are reviewing and improving methods for fusing and disseminating this high volume of information, much of it perishable. Management of reconnaissance systems and platforms is also coming under review. The volume of information that can be produced and the limited assets available, indicate that command of reconnaissance systems be retained at theater level. With changing ground battle doctrine, extensive training and operating at the operational level is necessary to integrate this complex system. These multiple efforts add up to a highly effective tactical reconnaissance system capable of meeting the intelligence needs of the AirLand Battle.

#### ENDNOTES

1. Charles A. Gabriel, "Tactical Reconnaissance for the 1980s", Signal , October 1979, p. 9.
2. US Department of the Army, Field Manual 100-5 , p. 2-1.
3. Donn A. Starry, "Extending the Battlefield", Military Review , March 1981, p. 32.
4. Starry, p. 35.
5. US Department of the Army, TRADOC Pamphlet 525-5 , pp. 26-27.
6. Starry, p. 32.
7. FM 100-5, p.6-5.
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